



Name :

Roll No. :

Invigilator's Signature :

CS/M.TECH(CT)/SEM-2/M(CT)-205G/2012

2012

ENVIRONMENTAL ENGINEERING

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Answer any *five* questions

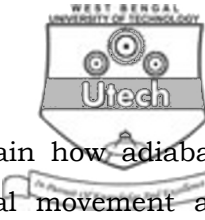
5 × 14 = 70

1. What do you mean by particulate matter ? How do you classify it ? Discuss the dynamic behavior of photochemical smog in the light of concentration of hydrocarbons, oxidant and oxides of nitrogen ? How does asbestosis affect human health ? How the presence of CO in blood in high concentration is responsible for asphyxiation ?

1 + 3 + 5 + 2 + 3

2. How the characteristics determine the choice of a fabric fiber for making fabric filter ? Discuss the operation of a Baghouse with a neat sketch. Compare the advantages and disadvantages of fabric filters. How does a simple spray tower work ?

2 + 6 + 3 + 3



3. What is environmental lapse rate ? Explain how adiabatic lapse rate is instrumental in the vertical movement and subsequent dispersion of air pollutants ? What is atmospheric stability ? What is the role of inversion in establishing stability ? 3 + 4 + 3 + 4
4. How do you classify water pollutants ? What is bio chemical oxygen demand ? How does it differ from chemical oxygen demand ? Name some synthetic organic compounds which are considered as water pollutants and discuss their effects. What is disease causing agent ? 2 + 2 + 2 + 4 + 4
5. What do you mean by primary and secondary treatment of waste water ? Discuss how floatation process is used for removal of fine suspended solids and oily matters from industrial waste waters with a process flow diagram ? 4 + 10
6. How is solid waste classified ? Discuss the salient features of various disposal methods. Give some hints about possible recovery of valuable materials from solid wastes. 3 + 8 + 3
7. What is ISO 14000 ? Make a comparative statement about the features of ISO 14001 and ISO 9001. 2 + 12
8. Write short notes on any *three* of the following :
 - a) Collection efficiency of a particulate separator
 - b) Advantages and disadvantages of Electrostatic Precipitator.



- c) Sedimentation of solid waste in vertical flow tanks.
 - d) Health effects of cadmium, nickel and mercury as air pollutants.
 - e) Cyclone separator
 - f) Sequence of operations for sludge treatment.
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